changing the electrical capacitance by said moving.

Any of the statements above, which further comprises a flexible diaphragm having a shape responsive to a pressure, and a distended shape of said diaphragm coacts with said springs to change the position of said rotor relative to said stator; which further comprises a member for coupling the motion of said diaphragm to the motion of said hub; wherein said member has two ends, one end being in contact with said diaphragm and the other end being in contact with said hub; wherein said member is integral with one of said diaphragm or said hub; or wherein said member is not integral with the other of said diaphragm or said hub.

Any of the statements above, which further comprises means for varying the position of said rotor relative to said stator; wherein said means includes a flexible diaphragm the shape of which is responsive to ambient pressure, and the motion of said diaphragm changes the position of said rotor relative to said stator; wherein said diaphragm is responsive to sound; wherein said diaphragm is part of a voice transducer for a cell phone; wherein said means includes coupling said capacitor to a moving object, and the relative motion is related to the inertia of said rotor; wherein said capacitor is part of an accelerometer; wherein said means includes a flexible object, said stator is coupled to one portion of the object, said rotor is coupled to another portion of the object, and the one portion moves relative to the other portion; or wherein said capacitor is part of a strain measuring system.

Any of the statements above wherein said suspension system includes a first cantilever support extending from one end of said stator to said rotor and a second cantilever support extending from the opposite end of said stator to said rotor; or wherein said first cantilever extends from the one end with approximately clamped boundary conditions and said second cantilever extends from the other end with approximately clamped boundary conditions.

Any of the statements above wherein said suspension system couples to said rotor such that such said rotor is mass balanced in two dimensions relative to said stator; wherein said rotor includes a centrally located hub, and said blades are cantileveredly supported from said hub; which further comprises a cantilever arm supporting said blades, one end of said arm being coupled to said hub, each said blade extending from said arm in a direction that is generally transverse to the direction from the hub to the free end of said arm; wherein said plates are planar and said blades are planar; or wherein said plates are circular about an axis and said blades are circular about the same axis.

Any of the statements above wherein said moving is by translating the blades between the plates; which further comprises suspending the rotor from the middle of the stator; wherein said suspending is to the middle of the rotor; or wherein said coupling is to the middle of the rotor.

Any of the statements above wherein said coupling is between the middle of the rotor and the middle of the diaphragm; wherein said coupling approximates a point load on the rotor; or which further comprises microfabricating the rotor, the stator, and the diaphragm.

Any of the statements above wherein said coupling includes that the diaphragm cannot substantially apply a moment to the rotor; wherein the diaphragm is substantially planar and the one direction is generally normal to the plane; or wherein said coupling includes the diaphragm displacing the rotor relative to the stator before said applying.

While the inventions have been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only certain embodiments have been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

The invention claimed is:

1. A microfabricated variable capacitor, comprising:

a stator including a plurality of electrically conductive plates each spaced apart from one another, each said pair of adjacent plates forming a channel between, each of said plates being in a first common electrical communication;

a rotor including a plurality of electrically conductive blades, said rotor being suspended relative to said stator such that each of said blades is received within a corresponding one of said channels and each said blade includes an area that overlaps with an area of an adjacent said plate, each of said blades being in a second common electrical communication;

a flexible diaphragm; and

a suspension system for flexibly coupling said rotor and said diaphragm, said system configured and adapted to apply a load from the diaphragm to the stator in one direction and unable to substantially apply a load from the diaphragm to the stator in another direction;

wherein the capacitance between the first electrical communication and the second electrical communication varies in correspondence to the overlapping areas between each said blade and an adjacent plate.

2. The capacitor of claim **1** wherein said suspension system couples to said rotor such that no net torque is exerted on the suspension system by the rotor.

3. The capacitor of claim **1** wherein said plates are planar and said blades are planar.

4. The capacitor of claim **1** wherein said plates are circular about an axis and said blades are circular about the same axis.

5. The capacitor of claim **1** wherein said rotor includes a centrally located hub, and said blades are cantileveredly supported from said hub.

6. The capacitor of claim **5** which further comprises a cantilever arm supporting said blades, one end of said arm being coupled to said hub, each said blade extending from said arm in a direction transverse to the direction from the hub to the other end of said arm.

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